

**UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE**

**MATERIAL SPECIFICATION
MS-214: “METAL, STRUCTURAL”**

214.1 SCOPE

This specification governs the quality of steel and aluminum alloys.

214.2 STRUCTURAL STEEL

Structural steel shall conform to the requirements of ASTM Specification A-36.

High-strength low alloy structural steel shall conform to ASTM Specification A-242 or A-588.

Carbon steel plates of structural quality to be bent or formed cold shall conform to ASTM Specification A-283 Grade C.

Carbon steel sheets of structural quality shall conform to ASTM Specification A-570 Grade D or A-611 Grade D.

Carbon steel strip of structural quality shall conform to ASTM Specification A-570 Grade C.

214.3 COMMERCIAL OR MERCHANT QUALITY STEEL

Commercial or merchant quality steel shall conform to the requirements of the applicable ASTM specifications listed below:

| <u>Product</u> | <u>ASTM Specification</u> | <u>Grade</u> |
|---------------------------------|---------------------------|---------------|
| Carbon steel bars | A-575 | M-195 to 1031 |
| Carbon steel sheets | A-569 | |
| Carbon steel strip | A-569 | |
| Zinc-coated carbon steel sheets | A-526 | |

214.4 ALUMINUM AND ALUMINUM ALLOY

Aluminum alloy products shall conform to the requirements of the applicable ASTM specifications listed below. Unless otherwise specified, ASTM B-209, Marine Grade Alloy 6061-T6 shall be used.

| <u>Product</u> | <u>ASTM Specification</u> |
|---|---------------------------|
| Aluminum & Aluminum Alloy Sheet & Plates | B-209 |
| Drawn seamless tubes | B-210 |
| Rolled or cold-finished bars, rods and wire | B-211 |
| Extruded bars, rods, shapes and tube | B-221 |
| Standard structural shape | B-308 |
| Extruded structural pipe and tube | B-429 |

214.5 BOLTS

Steel bolts shall conform to the requirements of ASTM Specification A-307. If high-strength bolts are specified they shall conform to the requirements of ASTM Specification A-325.

When galvanized or zinc-coated bolts are specified, the zinc coating shall conform to the requirements of ASTM Specification A-153; except that bolts 1/2 inch or less in diameter may be coated with electrodeposited zinc or cadmium coating conforming to the requirements of ASTM Specification A-164, Type RS, or to the requirements of ASTM Specification A-165, Type TS, unless otherwise specified.

215.6 RIVETS

Unless otherwise specified, steel rivets shall conform to the requirements of ASTM Specification A-502, Grade 1. Unless otherwise specified, aluminum alloy rivets shall be Alloy 606-T6 conforming to the requirements of ASTM Specification B-316.

214.7 WELDING ELECTRODES

Steel welding electrodes shall conform to the requirements of American Welding Society specification AWS A5.1. "Specification for Mild Steel-Covered Arc-Welding Electrodes," except that they shall be uniformly heavily coated (not washed) and shall be of such a nature that the coating will not chip or peel while being used with the maximum amperage specified by the manufacturer.

Aluminum welding electrodes shall conform to the requirements of American Welding Society specification AWS A5.10, "Specification for Aluminum and Aluminum-Alloy Welding Rods and Bare Electrodes."